



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,804	12/09/2003	Li Fung Chang	BP 3007	5734

34399 7590 11/09/2006

GARLICK HARRISON & MARKISON
P.O. BOX 160727
AUSTIN, TX 78716-0727

EXAMINER

ALPHONSE, FRITZ

ART UNIT PAPER NUMBER

2133

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/731,804

Applicant(s)

CHANG ET AL.

Examiner

Fritz Alphonse

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- a. Fig. 3, reference number 338
- b. Fig. 10, reference number 1006.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

a) In page 10 line 5, the recitation "MMI drivers" is improper because it is not defined what MMI means.

b) In page 22 line 8, the recitation "906" is improper; it is suggested to be changed to "908" (see figure 9).

Appropriate correction is required.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 14, 15, 21 are provisionally rejected under the judicially created doctrine of double patenting over claims 1, 5, 16 and 20 of Copending Application No. 10/791,945.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, for example:

Claim 16 of (Coping Application No: 10/791,945) claims “A system for implementing Incremental Redundancy (IR) operations in a wireless receiver comprising: a baseband processor that is operable to receive analog signals corresponding to a data block and to produce samples of the analog signals; an equalizer that is operable to receive the samples from the baseband processor, to equalize the samples, and to produce soft decision bits of the data block; a system processor that is operable to receive the soft decision bits of the data block; a plurality of IR processing module registers communicatively coupled to the system processor; an IR processing module communicatively coupled to the system processor and to the plurality of IR processing module registers; wherein the system processor is operable to configure the plurality of IR processing module registers and to initiate operation of the IR processing module of the wireless receiver; and wherein the IR processing module is operable to access the plurality of IR processing module registers, to receive the soft decision bits of the data block, and to perform IR operations on the soft decision bits of the data block in an attempt to correctly decode the data block” and claim 1 of application with serial No 10/731,804 claims “a system for implementing Incremental Redundancy (IR) operations in a wireless receiver comprising: at least one processing device that is operable to receive analog signals corresponding to a data block, to sample the analog signals to produce samples, to equalize the samples to produce soft decision bits corresponding to the data block, and to initiate IR operations; an IR processing function that is operable to perform IR operations on the soft decision bits of the data block in an attempt to correctly decode the data block; and IR memory operably coupled to the IR processing function, the IR memory including Type I IR memory adapted to store IR status information of the data block and Type II IR memory adapted to store the data block”. It is obvious that both

Art Unit: 2133

applications claim substantially the same limitations: receiving, sampling, equalizing, producing soft decision, IR processing (initialization and accessing are inherent to processing).

Claim 1 of (Coping Application No: 10/791,945) claims “A method for performing Incremental Redundancy (IR) operations in a wireless receiver comprising: receiving an analog signal corresponding to a data block; sampling the analog signal to produce samples; equalizing the samples to produce soft decision bits of the data block; configuring, by a system processor of the wireless receiver, a plurality of IR processing module registers; initiating, by the system processor of the wireless receiver, operation of an IR processing module of the wireless receiver; and accessing, by the IR processing module, the plurality of IR processing module registers; and performing, by the IR processing module, IR operations on the soft decision bits of the data block in an attempt to correctly decode the data block” and claim 14 of application with serial No 10/731,804 claims “A method for servicing Incremental Redundancy (IR) operations in a wireless receiver comprising: receiving an analog signal corresponding to a data block; sampling the analog signal to produce samples; equalizing the samples to produce soft decision bits corresponding to the data block; performing IR operations on the soft decision bits of the data block, including decoding the soft decision bits of the data block; failing to correctly decode the data block; storing IR status information regarding the data block in Type I IR memory; allocating Type II IR memory for the data block; storing an address of the allocated Type II IR memory in Type I IR memory; and storing at least a portion of the soft decision bits of the data block in the allocated Type II IR memory”. It is obvious that both applications claim substantially the same limitations: receiving, sampling, equalizing, producing soft decision, IR processing (initialization and accessing are inherent to processing).

Claims 5 and 20 of (Copen ding Application No: 10/791,945) claim "...determining that an additional copy of the data block is stored in memory; retrieving soft decision bits of the additional copy of the data block; soft combining the soft decision bits of the additional copy of the data block with the soft decision bits of the data block to produce combined soft decision bits of the data block; and decoding the combined soft decision bits of the data block" and claims 15 and 21 of application with serial No 10/731,804 claim "...determining that a Modulation and Coding Scheme (MCS) mode of the second data block is compatible with a MCS mode of the data block; retrieving soft decision bits of the data block from the allocated Type II IR memory; combining soft decision bits of the data block with soft decision bits of the second data block to produce combined soft decision bits; and decoding the combined soft decision bits". It is obvious that both applications claim substantially the same limitations: determining, retrieving soft decision, soft combining and decoding.

This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 7-16, 18-22, 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pukkila (US Pub. No. 20010017904) in view of Parolari (US Pub. No. 20040081248 A1).

As to claims 1 and 14, Pukkila (fig. 2) shows a system for implementing Incremental Redundancy (IR) operations in a wireless receiver comprising a processing device that is operable to receive analog signals corresponding to a data block (fig. 2, block 201 and fig. 3 block 301; paragraphs [0024] and [0027]), to sample the analog signals to produce samples (fig. 2 block 203 and fig. 3 block 301; paragraphs [0024]-[0025] and [0027]); to equalize the samples to produce soft decision bits corresponding to the data block (fig. 2 block 205 and fig. 3 block 306; paragraph [0025] and [0028]-[0029] and [0035]), and to initiate IR operations. Pukkila teaches an IR processing function that is operable to perform IR operations on the soft decision bits of the data block in an attempt to correctly decode the data block (fig. 2 block 205' and fig. 3 blocks 305-318; paragraphs [0024]-[0031] and [0035]); and IR memory (fig. 2 block 204) operably coupled to the IR processing function (block 205').

Pukkila differs from claims 1 and 14 in that he does not specifically teach "an IR memory including Type I IR memory adapted to store and allocate IR status information of the data block and Type II IR memory adapted to store the data block".

However, in the same field of endeavor, Parolari teaches a method of link adaptation in cellular communication systems, wherein an IR memory including Type I IR memory adapted to store IR status information of the data block and Type II IR memory adapted to store the data block (see paragraphs [0051, [0061] and [0074]).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to combine Pukkila's adaptive method with the method of link adaptation in cellular communication systems, as disclosed by Parolari. Doing so would help optimizing data throughput at the radio interfaces of a packet data cellular network, and indicate an improvement

Art Unit: 2133

for taking into account the effect of slow frequency hopping and/or high user mobility (paragraph 0082).

As to claim 2, Pukkila does not explicitly disclose a system, wherein the IR status information stored in Type I IR memory stores retransmission information regarding a corresponding data block sequence number, a Type II IR memory address for each stored data block, and Modulation and Coding Scheme (MCS) mode information for each stored data block.

However, the limitations are obvious and well known in the art, as evidenced by Parolari (paragraphs [0051], [0061] and [0074]); paragraph [0074]-[0079]). See the motivation for the same reason disclosed in claims 1 and 14 above.

As to claims 7-9, Pukkila and Parolari disclose claim 1. Parolari also discloses the IR memory is adapted to store both segmented data blocks and unsegmented data blocks (paragraph 0074). Parolari discloses a system, wherein Type I IR memory is addressed based upon a block sequence number of the data block (paragraph [0074]-[0079]).

As to claims 10-11 and 13, Pukilla discloses a system, wherein at least a portion of the IR processing function comprises an IR processing module distinct from the at least one processing device and, a baseband processor (fig. 2; block 2006').

As to claim 12, Pukkila and Parolari disclose claim 1. Parolari discloses the IR processing function and the IR memory support Modulation and Coding Scheme (MCS) modes of the GSM EDGE standardized protocol (abstract; paragraph [0047], [0048], and [0074]; fig. 5, paragraphs ([0112 and 0113])).

As to claim 20, method claim 20 corresponds to apparatus claim 1; therefore, it is analyzed as previously discussed in claim 1 above.

As to claims 15 and 21, Pukkila and Parolari disclose claims 14 and 20. Pukkila also discloses receiving data block (fig. 2 block 204 and fig. 3 block 302; paragraph [0024-0031]); retrieving soft decision bits of the data block from the allocated Type II IR memory (fig. 2 block 204 and figure 3 block 304; paragraphs [0024-0031]); combining soft decision bits of the data block with soft decision bits of the second data block to produce combined soft decision bits; and decoding the combined soft decision bits (fig. 2 block 211 and figure 3 block 307; paragraphs [0024-0031] and [0035]) .

Pukkila does not explicitly disclose determining that a Modulation and Coding Scheme (MCS) mode of the second data block is compatible with a MCS mode of the data block.

However, the limitations are obvious and well known in the art, as evidenced by Parolari (paragraphs [0051, [0061] and [0074]); paragraph [0074]-[0079]). See the motivation for the same reason disclosed in claims 1 and 14 above.

As to claims 16 and 22, Pukkila and Parolari disclose claims 14 and 20. Parolari also discloses combining soft decision bits of the data block with soft decision bits of the second data block to produce combined soft decision bits comprises combining punctured soft data bits of the data block with punctured soft data bits of the second data block ([0073-0074]).

As to claims 18 and 24, Pukkila and Parolari disclose claims 14 and 20. Parolari discloses a method, wherein each symbol of the data block is represented by four soft decision bits; and each symbol of the data block is represented by five depunctured soft decision bits (fig. 5 page [0112]).

As to claims 19 and 25, the claims have substantially the limitations of claim 2; therefore they are analyzed as previously discussed in claim 2 above.

Art Unit: 2133

7. Claims 3-6, 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pukkila in view of Parolari and further in view of Ramesh (U.S. Pat, No. 6,909,758 B2).

As to claims 3-4, Pukkila and Parolari disclose claim 1. Parolari also discloses Type II IR memory is adapted to store soft decision bits of the data block (paragraphs [0051; [0061]], and puncturing pattern of the data block, and a signal quality indicator of the data block (paragraph [0074]).

Parolari does not explicitly disclose a system adapted to store depunctured soft decision bits. However, in the same field of analogous art, Ramesh discloses depuncturing the copy of the data block stored in memory (fig. 2, block 240; col. 5, lines 41-51 and fig. 5 block 510; col. 7, lines 21-32).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time of the invention to incorporate the decoding technique disclosed by Ramesh in the link adaptation process disclosed by Parolari. Doing so would provide reliable techniques to maximize the overall bit rate when transmitting data and depuncture a punctured data block (Ramesh: col. 4, lines 30-34).

As to claims 5-6, Pukkila and Parolari disclose claim 1. Parolari also discloses system, wherein punctured soft decision bits are represented by a first number of soft decision bits per symbol. Parolari discloses each symbol of the data block is represented by four soft decision bits per symbol (paragraph [0074] and tables 1-4).

Parolari does not explicitly disclose a system adapted to store depunctured soft decision bits. However, the limitations are obvious and very well known in the art, as evidenced by

Art Unit: 2133

Ramesh (fig. 2, block 240; col. 5, lines 41-51). See the motivation for the same reason disclosed in claims 3-4 above.

As to claims 17 and 23, Pukkila and Parolari disclose claims 14 and 20. Parolari also discloses combining soft decision bits of the data block with soft decision bits of the second data block to produce combined soft decision bits (paragraphs [0051, [0061]; paragraph [0074]).

Parolari does not explicitly disclose a system adapted to store depunctured soft decision bits. However, in the same field of analogous art, Ramesh discloses depuncturing the copy of the data block stored in memory (fig. 2, block 240; col. 5, lines 41-51 and fig. 5 block 510; col. 7, lines 21-32). See the motivation for the same reason disclosed in claims 3-4 above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (703) 872-9306 for all formal communications.

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (Receptionist).

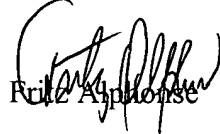
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on M-F, 8:30-6:00, Alt. Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert De Cady, can be reached at (571) 272-3819.

Art Unit: 2133


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Eric Appenrose

Art Unit 2133

October 25, 2005


ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100